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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,629	05/18/2004	Kazumichi MACHIDA	040184	3628
23850	7590	10/06/2005	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP			CHAN, EMILY Y	
1725 K STREET, NW			ART UNIT	
SUITE 1000			PAPER NUMBER	
WASHINGTON, DC 20006			2829	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

ck

Office Action Summary	Application No.		Applicant(s)	
	10/709,629		MACHIDA ET AL.	
	Examiner		Art Unit	
	Emily Y. Chan		2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/19/05 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamaru et al US Patent No.6,496,023 in view of Howland US Publication No. 2003/0227292.

With respect to claim 1, Kanamaru et al (023) disclose a probe sheet unit (see Figs 2 and 16A and 16B) being a sensing section of a Semiconductor wafer measuring instrument (fig. 2) comprising;

a base plate (probe forming board 4) mountable to a prober of the instrument (wafer inspection apparatus);

a sheet member (see Fig. 16A, "sheet material 29") mounted to the base plate (probe forming board 4) and is elastically deformable in response to a force (pressing jig

28) acting thereon through the respective measurement probes (6) for varying proximity therefrom to the base plate (probe forming board 4) (see Fig. 16 B and page 7, paragraph (0084)); and

plural measurement probes (6).

Kanamaru et al ('023) fail to disclose that the plural measurement probes (6) are elastically deformable respectively in response to a force acting on the top thereof for varying proximity from the top of the probe to the sheet member (29).

Howland ('292) discloses a multi-probe assembly for semiconductor wafer measurement (see Fig. 3) comprising a base plate (48) and a plurality of probes (36). Howland ('292) exclusively teaches their plurality of probes (36) each having an elastically deformable conductive tip (38) movable into contact with a front surface of a dielectric (12) (see Abstract and page 2, paragraph (0032)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the elastically deformable probe of Howland ('292) into Kanamaru et al ('023)'s probe sheet unit to make Kanamaru et al ('023)'s plural measurement probes elastically deformable because Howland ('292) disclose that by applying their elastic probes to a dielectric or semiconductor wafer surface, consequently, the semiconductor wafer surface can be mapped without the need for lateral movement between the semiconductor wafer surface and a probe (see page 2, paragraph (0016)).

With respect to claim 2, Kanamaru et al ('023) disclose wiring patterns formed inside and/or on a surface of the sheet member (29) and an external electrode

connected electrically to the probes (6) through the wiring patterns provided on the surface of the sheet member (see Fig. 2).

With respect to claim 3, Kanamaru et al ('023)'s circuit elements are provided inside and/or on a surface of the sheet member (29) and the circuit elements are connected electrically to the wiring patterns (see Fig. 2, circuit element and wiring pattern connection).

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamaru et al ('023) in view of Howland ('292) as applied to claims 1-3 above, and further in view of Takayama et al US Patent No. 5,977,783.

Kanamaru et al ('023) in view of Howland ('292) do not disclose that their probe is curved and a reinforcing member with an elasticity higher than the probe is provided.

Takayama et al ('783) disclose a multiplayer probe (2) (see Fig. 1) and exclusively teach that the multiplayer probe (2) is curved (see Figs 2-5) and there is a reinforcing member (2b) with an elasticity higher than the multiplayer probe (2) is provided integrally with multiplayer the probe (2) on a surface thereof along the length direction (see Col. 3, lines 10-14 and Col. 6, lines 42-44).

It would have been obvious to one of ordinary skilled in the art at the time the claimed invention was made to incorporate the curved probes and the reinforcing member of Takayama et al ('783) into Kanamaru et al ('023) in view of Howland ('292) 's probe sheet device for the expected benefit of providing a highly reliable electrical testing as disclosed by Takayama et al ('783) (see Abstract, last line).

3. Claims 5 and 7 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamaru et al ('023) in view of Jitsumori et al US Patent No. 6,232,791.

Kanamaru et al ('023) in view of Howland ('292) do not disclose that their probe is curved and a reinforcing member with an elasticity higher than the probe is provided on the surface of the sheet member for claim 5 and also do not disclose an elastic member interposed between the base plate and the probe sheet member for claim 7.

Jitsumori et al ('791) disclose a probing apparatus (see Fig. 1b) and exclusively teach a probe (14) that is curved, a sheet member ("elastic sheet 13") and a reinforcing member ("elastic member 11") with an elasticity higher than the probe (14) for claim 5 and also disclose an elastic member (11) interposed between the base plate (10) and the probe sheet member (13) for claim 7 (see Col. 5, lines 38-39).

It would have been obvious to one of ordinary skilled in the art at the time the claimed invention was made to incorporate the curved probes and the reinforcing member of Jitsumori et al ('791) into Kanamaru et al ('023) in view of Howland ('292) 's probe sheet device for the expected benefit of providing more reliable electric connections between the probe terminals and the testing electrodes because Jitsumori et al ('791) disclose that the "elastic member accommodates variations in the distance between the board and each of the probe terminals" (see Col. 5, lines 42-44).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamaru et al ('023) in view of Wada et al U S Publication No. 2004/0172556.

Kanamaru et al ('023) in view of Howland ('292) do not specify that their sheet member is made of material with a linear expansion coefficient in the range of from 2.5 to 10.5 ppm/°C.

Wada et al ('556) disclose a probe sheet unit (see Fig. 27) comprising a base plate (19), a sheet member (29), a pusher and an elastomer (17). Wada et al ('556) exclusively teach that the sheet member (29) is made of softer material (see page 7, paragraph (0125)), which would inherently meets the claimed material with a linear expansion coefficient in the range of from 2.5 to 10.5 ppm/°C.

It would have been obvious to one of ordinary skilled in the art at the time the claimed invention was made to incorporate the teaching of the sheet member made of softer material as taught by Wada et al ('556) into Kanamaru et al ('023)'s probe sheet device for the expected benefit of reducing damages caused in a test pad upon testing a semiconductor integrated circuit as disclosed by Wada et al ('556) (see page 1, paragraph (0013)).

Response to Arguments

5. Applicant's arguments filed on 8/12/05 have been fully considered but they are not persuasive. In the Remarks, applicants argued that Kanamaru ('023)'s probe is not deformable. The examiner agreed with applicants' assertion and now applies Howland ('292) for showing the feature of deformable probe. Applicants also argued that the claimed sheet member is varied in order to absorb to accommodate dispersion in height of electrodes of the measurement object whereas Kanamaru ('023)'s sheet member (29) is elastically deformed to tilt the probe so that the probe wipes on the surface of the

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electrode pad. However, the sheet member which is varied in order to absorb to accommodate dispersion in height of electrodes of the measurement object is never recited in the instant claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Y. Chan whose telephone number is 571-272-1956. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC
9/29/05


VINH NGUYEN
PRIMARY EXAMINER
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09/30/05